	Division of Environmental Health and Communicable Disease Prevention	
	<b>Section: 4.0 Diseases and Conditions</b>	Updated 7/03
	Subsection: Botulism	Page 1 of 24

## Botulism Table of Contents

[Botulism](#)

[Fact Sheet](#)


[Algorithm To Obtain Botulinum Antitoxin](#)

[Botulism Investigation Flowchart](#)

[Botulism - To Request or Not Request Testing by CDC](#)

[Guide to Investigation of Infant Botulism \(CDC 52.73\)](#)

[Botulism Alert Summary](#)

	Division of Environmental Health and Communicable Disease Prevention	
	Section: 4.0 Diseases and Conditions	Updated 7/03
	Subsection: Botulism	Page 2 of 24

## Botulism

### Overview<sup>(1,2)</sup>

**Note:** Botulism is rare in Missouri, but it is potentially very serious. CDC in Atlanta is the only source for botulinum anti-toxin. Arrangements for delivery must be made through the State Health Department. Botulism is also a potential bioterrorism weapon. Contact your Regional Communicable Disease Coordinator *at once* upon learning of the *possibility* of a case of botulism.

For a complete description of botulism, refer to the following texts:

- Control of Communicable Diseases Manual (CCDM).
- Red Book, Report of the Committee on Infectious Diseases.

### Case Definition<sup>(3)</sup>

#### **Botulism, Foodborne**

##### ***Clinical description***

Ingestion of botulinum toxin results in an illness of variable severity. Common symptoms are diplopia (double vision), blurred vision, and bulbar weakness. Symmetric paralysis (descending) may progress rapidly.

##### ***Laboratory criteria for diagnosis***

- Detection of botulinum toxin in serum, stool, or patient's food or
- Isolation of *Clostridium botulinum* from stool

##### ***Case classification***

*Confirmed:* a clinically compatible case that is laboratory confirmed or that occurs among persons who ate the same food as persons who have laboratory confirmed botulism.

*Probable:* a clinically compatible case with an epidemiologic link (e.g., ingestion of a home-canned or other potentially suspect product within the previous 48 hours).


#### **Infant Botulism (also referred to as "Intestinal Botulism")**

##### ***Clinical description***

An illness of infants, characterized by constipation, poor feeding, and "failure to thrive" that may be followed by progressive weakness, impaired respiration, and death.

##### ***Laboratory criteria for diagnosis***

- Detection of botulinum toxin in stool or serum or
- Isolation of *C. botulinum* from stool

	Division of Environmental Health and Communicable Disease Prevention	
	Section: 4.0 Diseases and Conditions	Updated 7/03
	Subsection: Botulism	Page 3 of 24

### ***Case classification***

*Confirmed:* a clinically compatible case that is laboratory confirmed, occurring in a child aged <1 year.<sup>(3)</sup>

## **Botulism, Wound**

### ***Clinical description***

An illness resulting from toxin produced by *C. botulinum* that has infected a wound. Common symptoms are diplopia, blurred vision, and bulbar weakness. Symmetric paralysis may progress rapidly.

### ***Laboratory criteria for diagnosis***

- Detection of botulinum toxin in serum or
- Isolation of *C. botulinum* from wound

### ***Case classification***

*Confirmed:* a clinically compatible case that is laboratory confirmed in a patient who has no suspected exposure to contaminated food (has been ruled out as a food-borne botulism case) and who has a history of a fresh, contaminated wound during the 2 weeks before onset of symptoms.<sup>3</sup>

## **Information Needed for Investigation**

**Verify the diagnosis.** Is descending weakness or symmetric flaccid paralysis, or other appropriate signs and symptoms present?

**NOTE:** Laboratory examination or culturing of specimens is routinely available only from the CDC laboratory in Atlanta. Arrangements for such testing must be made through your Regional Communicable Disease Coordinator and the State Public Health Laboratory (SPHL).


**Establish the extent of illness.** Determine if household or other close contacts are ill or are at risk for disease (consumption of suspected contaminated food), by contacting the health care provider, patient or family member.

**Contact the Regional Communicable Disease Coordinator immediately upon learning of a suspected case of botulism.**

## **Case/Contact Follow Up And Control Measures**

Determine the source of infection to prevent other cases:

- **IMPORTANT:** To obtain botulinum antitoxin through CDC, follow the “**Algorithm To Obtain Botulinum Antitoxin**”.

	Division of Environmental Health and Communicable Disease Prevention	
	<b>Section: 4.0 Diseases and Conditions</b>	Updated 7/03
	Subsection: Botulism	Page 4 of 24

- Assist contacts in identifying suspect food sources. While “home canned” foods have traditionally been thought of as the major culprit, it is extremely important to consider all possible food sources. Recent botulism cases have been traced to baked potatoes, frozen potpies, garlic stored in oil, grilled onions, and fermented ethnic foods.
- Retrieve and refrigerate suspect food(s) and its container. If the food is a commercial product, obtain the brand name, lot number, and distributor.
- **IMPORTANT:** Follow the “**Botulism Investigation Flowchart**” to determine if case meets definition **for possible bioterrorist event**. If case meets definition for possible bioterrorist event, contact the Department Situation Room (DSR) at 800-392-0272 (24/7).

#### Laboratory Procedures

- Specimens should be refrigerated, not frozen
- Specimens require a SPHL number. That number will be issued by Disease Investigation after determination that such testing is justified. Such determination will be made in consultation with CDC. For more information, see the document titled “Botulism - To Request or Not Request Testing by CDC” in this section.

#### Specimens:

- ♦ Foodborne:
  - For adults, obtain 20 ml (preferred) of stool and 15 ml (preferred) of blood from the patient. Include the food sample if available.
  - For infants and small children, collect 2 stools (20 ml each-preferred) and the suspect food if available.
- ♦ Wound Related:
  - Send specimen of debrided tissue or wound exudate collected by aspiration or swab. To decrease chance of contamination, specimen should be collected using aseptic technique.


If a physician requests testing of blood for antitoxin levels (situation where physician is injecting toxin antibodies into muscles to relax them), have caller contact and send these specimens to:

Northview Pacific Labs  
 551 Linus Pauling Dr.  
 Hercules, CA 94547  
 Phone: (510) 964-9000

#### Control Measures

See the Botulism section of the Control of Communicable Diseases Manual (CCDM), “Control of patient, contacts and the immediate environment”.

See the Botulism section of the Red Book.

	Division of Environmental Health and Communicable Disease Prevention	
	<b>Section: 4.0 Diseases and Conditions</b>	Updated 7/03
	Subsection: Botulism	Page 5 of 24

No person-to-person transmission of botulism has been documented. Public health education is the primary means of control and prevention. Antimicrobial agents, especially aminoglycosides, should be avoided in that they could increase the amount of toxin available for absorption.

### **Reporting Requirements**

Botulism is a Category I disease and shall be reported to the local health authority or to the Missouri Department of Health and Senior Services within 24 hours of first knowledge or suspicion by telephone, facsimile or other rapid communication.


1. For confirmed and probable cases, complete a "Disease Case Report" (CD-1).
2. For cases of infant botulism complete, "Guide to Investigation of Infant Botulism" (CDC52.73). For adult cases complete the Botulism Alert Summary.
3. Entry of the completed CD-1 into the MOHSIS database negates the need for the paper CD-1 to be forwarded to the Regional Health Office.
4. Send the completed secondary investigation form(s) to the Regional Health Office.
5. All outbreaks or "suspected" outbreaks must be reported as soon as possible (by phone, fax or e-mail) to the Regional Communicable Disease Coordinator. This can be accomplished by completing the Missouri Outbreak Surveillance Report (CD-51).
6. Within 90 days from the conclusion of an outbreak, submit the final outbreak report to the Regional CD Coordinator.

### **References**

1. Chin, James, ed. "Botulism". Control of Communicable Diseases Manual, 17<sup>th</sup> ed. Washington, D.C.: APHA, 2000: 70-75.
2. American Academy of Pediatrics. "Botulism." In: Pickering, L., ed. 2000 Red Book: Report of the Committee on Infectious Diseases. 25<sup>th</sup> ed. Elk Grove Village, IL. 2000: 212-214.
3. Centers for Disease Control. Case Definitions for Infectious Conditions Under Public Health Surveillance. MMWR 1997;46 (RR-10):7-8

### **Other Sources of Information**

1. Mandell, GL, Bennett, JE, and Dolin, R, ed. Mandell Douglas and Bennett's Principles and Practice of Infectious Diseases, 5<sup>th</sup> ed. New York: Churchill Livingstone, 2000: 2543-2547.
2. Evans, AS and Brachman, PS, ed. Bacterial Infections of Humans Epidemiology and Control, 3<sup>rd</sup> ed. New York: Plenum, 1998: 139-150

	Division of Environmental Health and Communicable Disease Prevention	
	<b>Section: 4.0 Diseases and Conditions</b>	Updated 7/03
	Subsection: Botulism	Page 6 of 24

## **Online Resources**

1. Cox, Nadine and R Hinkle, Infant Botulism, American Family Physician 2002;65:1388-92. American Academy of Family Physicians.  
<http://www.aafp.org/afp/20020401/1388.html> (29 July 2003)
2. Kim, Joseph, MD, eMedicine Journal, October 15 2001, Volume 2, Number 10, Botulism, <http://www.emedicine.com/emerg/topic64.htm> (29 July 2003)
3. CDC Botulism Disease Information  
[http://www.cdc.gov/ncidod/dbmd/diseaseinfo/botulism\\_g.htm](http://www.cdc.gov/ncidod/dbmd/diseaseinfo/botulism_g.htm) (29 July 2003)
4. CDC Online botulism manual  
<http://www.cdc.gov/ncidod/dbmd/diseaseinfo/botulism.pdf> (29 July 2003)

# **Botulism**

## **FACT SHEET**

(Foodborne botulism and infant/intestinal botulism)

### **What is botulism?**

Botulism is a rare but serious illness that can result in paralysis and death. The germ, *Clostridium botulinum*, is commonly found in soil and can be carried in dust.

Eating foods that contain the botulism toxin causes foodborne botulism. Foodborne botulism is especially dangerous because several people can be poisoned by a single contaminated food.

Infant or intestinal botulism is the most common form of botulism in the United States and mainly affects infants under 1 year of age. It is caused when spores of the germ are consumed. Once spores are consumed they grow in the intestines and release the botulism toxin.

### **Who gets botulism?**

A person who eats a food that contains the botulism toxin may get botulism. It often involves improperly processed, home canned foods.

Botulism in infants under one year of age has been associated with the ingestion of contaminated honey.

### **How is botulism spread?**

Eating a food with the toxin present or a food item containing bacterial spores can spread botulism. Person to person spread does not occur.

### **What are the symptoms of botulism?**

Both foodborne and infant botulism affect the nervous system. The symptoms of foodborne botulism can include: blurred or double vision, drooping eyelids, slurred speech, difficulty swallowing, muscle weakness, paralysis (that starts from the head and spreads downward), a responsive patient with absence of fever, no sensory deficits, respiratory dysfunction, and sometimes death.

Infant botulism has a wide range of symptoms generally starting with constipation followed by sluggishness, poor feeding, difficulty swallowing, loss of head control, and poor reflexes (floppy baby).

### **How soon do symptoms appear?**

Symptoms of foodborne botulism usually appear 12-36 hours after ingestion, but may take several days.

The time between exposure and onset of symptoms is unknown for infant/intestinal botulism.

**What is the treatment for botulism?**

Good supportive care in a hospital is necessary for all forms of botulism. Difficulty in breathing accompanied by muscle weakness or paralysis may require a person to be on a breathing machine (ventilator/respirator) for weeks. Antitoxin is given in certain cases of foodborne botulism, but not in cases of infant botulism. Antitoxin prevents patients from worsening, but recovery still takes many weeks.

**What happens if botulism is not treated?**

Untreated botulism may result in death.


**How can botulism be prevented?**

Botulism can be prevented. Persons who do home canning should follow strict sanitary practices. Oils infused with garlic or herbs should be refrigerated. Potatoes baked while wrapped in aluminum foil should be kept hot until served or refrigerated. Because the botulism toxin is destroyed by high temperatures, persons who eat home-canned foods should consider boiling the food for 10 minutes before eating it. Instructions on safe home canning can be obtained from county extension services or from the US Department of Agriculture.

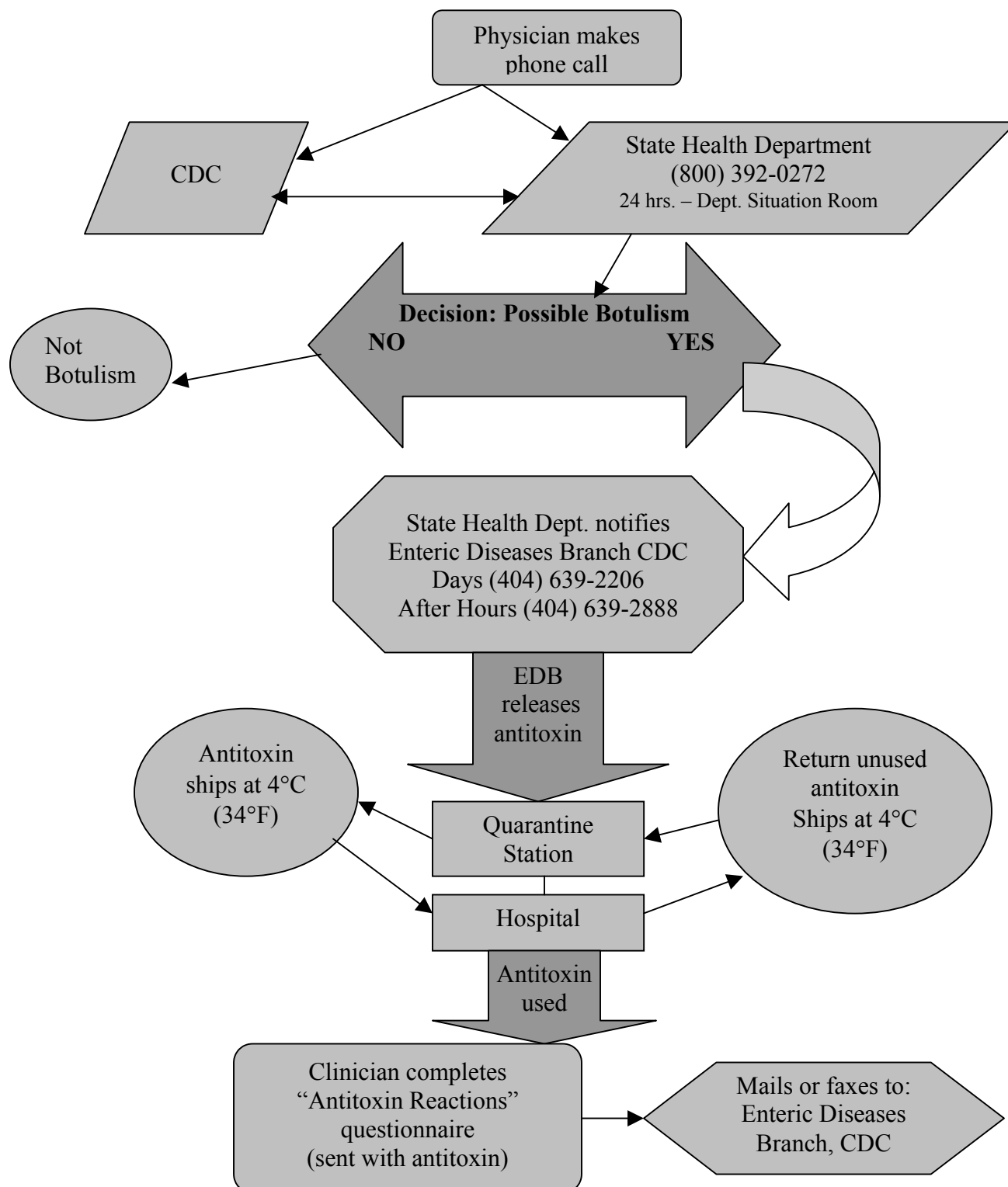
Because honey has been a source of infection for infants, children less than 12 months should not be fed honey or items sweetened with honey.

**Missouri Department of Health and Senior Services  
Section for Communicable Disease Prevention  
Phone: (866) 628-9891 or (573) 751-6113**

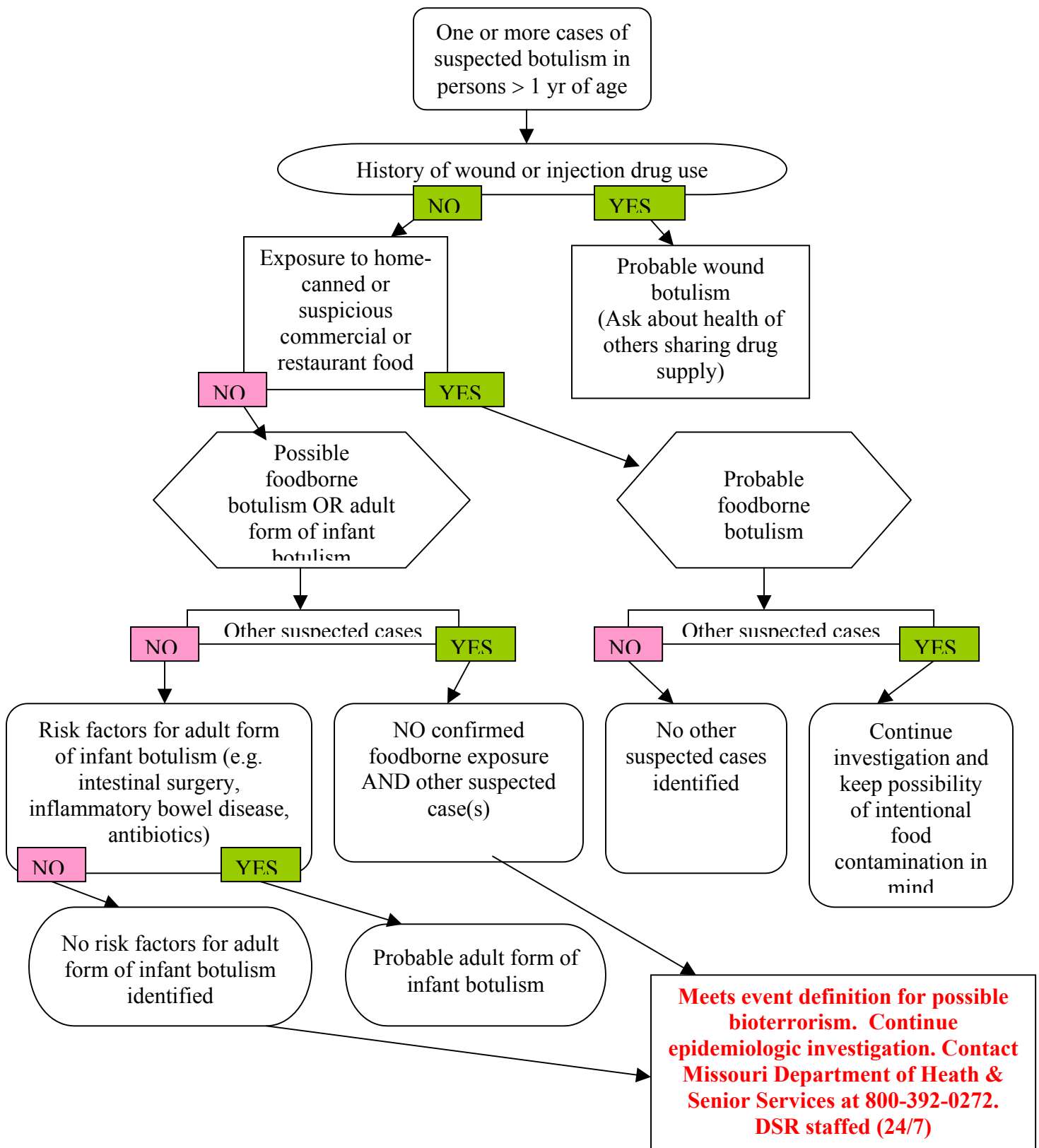



	Division of Environmental Health and Communicable Disease Prevention	
	Section: 4.0 Diseases and Conditions	Updated 7/03
	Subsection: Botulism	Page 9 of 24

## Algorithm To Obtain Botulinum Antitoxin



## Botulism Investigation Flowchart



	Division of Environmental Health and Communicable Disease Prevention	
	Section: 4.0 Diseases and Conditions	Updated 7/03
	Subsection: Botulism	Page 11 of 24

## Botulism

### To Request or Not Request Testing by CDC

**Is request valid or warranted? (Is the doctor seriously considering botulism as the diagnosis?** Botulism testing should not be requested only because the physician is wanting to rule-out botulism as a diagnosis, unless no other diagnosis has been forthcoming.)

1. Is antitoxin being requested? (Not given/available for infants)
2. Is this foodborne, and if so, are others at risk?  
     Is a food specimen available to be sent with blood and/or stool?  
         **For adults**, CDC prefers serum (15 ml) with stool specimen (20 ml). CDC requests a sample of the suspect food, if available.  
         **For infants/small children**, CDC prefers 2 acute stools, 20 ml each and suspect food if available.
3. If wound related - need wound specimen (debrided tissues, wound exudate by aspiration or swab).

**If considered justified, contact or fax the enteric diseases branch of the CDC** (Phone: 404-639-3867, FAX 404-639-3333) to let them know specimens are being sent. Provide CDC with the name of the medical facility as well as the patient's name. Dr. Susan Maslanka is currently Bureau Chief. As an alternative, call the branch general number: 404-639-2206 or 404-639-0895.


**If CDC agrees to accept specimen, it can be and should be sent directly to CDC. However, a SPHL specimen number is required, so the SPHL must be contacted. Call (573) 751-0633. Ask for Sandy Hanauer, or David Byrd.** The SPHL can also provide technical assistance to the local laboratory on how to send the specimens to CDC.

Stools and serum need to be cold but not frozen, and sent overnight delivery (includes Fridays) to:

CDC-DASH  
 Att: Dr. Susan Maslanka  
 MSG 28  
 1600 Clifton Road NE  
 Atlanta, GA 30333

On box, also write:

**Medical Emergency-Phone on arrival (639-3867) and Refrigerate on Arrival.**

	Division of Environmental Health and Communicable Disease Prevention	
	<b>Section: 4.0 Diseases and Conditions</b>	Updated 7/03
	Subsection: Botulism	Page 12 of 24

NOTE: Sometimes a physician may wish to have blood tested for antitoxin levels (situation where physician is injecting toxin antibodies into muscles to help relax them).

**When this is the case specimens need to be sent to:**

Northview Pacific Labs  
551 Linus Pauling Dr.  
Hercules, CA 94547  
Phone: 510-964-9000 (Tracy Brunn is the contact.)

## GUIDE TO INVESTIGATION OF INFANT BOTULISM

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	Syrup/water (47)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																												
Honey/water (49)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																													
Sugar/water (51)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____ (50)																																																																																												
Tee/water (52)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																													
Fruits, cooked (53)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																													
Fruits, raw (54)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																													
Vegetables, cooked (55)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																													
Vegetables, raw (56)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																													
Home-canned foods (57)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																													
Baby Foods (Jars) (58)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																													
Other _____ (59)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																													

## DIETARY HISTORY

## Dietary History (Cont'd.)

Did infant use a pacifier? (60) 1 ☐ Often 2 ☐ Sometime 3 ☐ Rarely 4 ☐ NoIf yes, was it ever dipped in: (61) 1 ☐ Syrup 2 ☐ Honey 3 ☐ Other \_\_\_\_\_ 4 ☐ Nothing

## INFANT'S MEDICAL HISTORY (PRIOR TO ONSET OF INFANT BOTULISM)

Were infant's usual bowel movements: (62) 1 ☐ Two or more per day 3 ☐ Every other day  
2 ☐ One per day 4 ☐ Less than every other day

## Illness prior to onset of present illness (Infant botulism)

	Yes 1	No 2	Unk 9	Age in weeks
Fever ( $>101^{\circ}$ F) (63)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____ (64-65)
Cold(s) (66)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____ (67-68) _____ wks. (69-70)
Constipation (Mother's opinion) (71)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____ (72-73)
Diarrhea (Mother's opinion) (74)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____ (75-76)
Other (77)				_____

Did infant receive antibiotics prior to onset of present illness (Infant botulism)? (78) 1 ☐ Yes 2 ☐ No 9 ☐ Unk.

If yes, give

AGE (IN WEEKS)	REASON	DRUG	ROUTE (Oral, Parenteral or Both)	DURATION (Days)
_____ (79-80)	_____ (81)	_____ (82)	_____ (83)	_____ (84-85)
_____ (86-87)	_____ (88)	_____ (89)	_____ (90)	_____ (91-92)
_____ (93-94)	_____ (95)	_____ (96)	_____ (97)	_____ (98-99)

## ENVIRONMENTAL HISTORY (PRIOR TO ONSET OF INFANT BOTULISM)

Was there any construction, excessive dust, or environmental change around home from birth of infant until onset of present illness (Infant botulism)? (100)

1 ☐ Yes 2 ☐ No 9 ☐ Unk.

If yes, describe (101) \_\_\_\_\_

Was parent(s) involved in gardening or yard work from birth of infant until onset of present illness? (102) 1 ☐ Yes 2 ☐ No 9 ☐ Unk.

If yes, describe (103) \_\_\_\_\_

Did infant remain away from home for more than 1 week prior to onset of present illness? (104) 1 ☐ Yes 2 ☐ No 9 ☐ Unk.

If yes, describe (105) \_\_\_\_\_

## SYMPTOMS OF PRESENT ILLNESS (INFANT BOTULISM)

a) Mother first noted infant was ill on \_\_\_\_\_ Mo. \_\_\_\_\_ Day \_\_\_\_\_ Yr. \_\_\_\_\_, at \_\_\_\_\_ weeks of age.  
(106-107) (108-109) (110-111) (112-113)

(114) First symptom \_\_\_\_\_

(115) Second symptom \_\_\_\_\_

b) The initial visit to a physician was on \_\_\_\_\_ Mo. \_\_\_\_\_ Day \_\_\_\_\_ Yr. \_\_\_\_\_, at \_\_\_\_\_ weeks of age?  
(116-117) (118-119) (120-121) (122-123)

c) Infant was hospitalized on \_\_\_\_\_ Mo. \_\_\_\_\_ Day \_\_\_\_\_ Yr. \_\_\_\_\_, at \_\_\_\_\_ weeks of age?  
(124-125) (126-127) (128-129) (130-131)

d) Symptoms noted before patient hospitalized:

	Yes 1	No 2	Unk. 9	Mo.	Day	Yr.	Weeks old
Constipation (132)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____ (133-140)
Poor feeding (141)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				

(Symptoms cont'd on next page)

## d) Symptoms noted before patient hospitalized: (Cont'd)

	Yes 1	No 2	Unk 9
Altered cry (142)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Irritable (143)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Poor Head Control (144)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
General Weakness (145)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Difficulty Breathing (146)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fever (147)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (148) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If infant had constipation, how many bowel movements were occurring? (149)

1 ☐ Two or more per day   2 ☐ One per day   3 ☐ One every other day   4 ☐ Two-three times per week  
5 ☐ One per week   6 ☐ Less than one per week   7 ☐ Other \_\_\_\_\_

Interviewee(s) (150)   1 ☐ Mother   2 ☐ Father   3 ☐ Both   4 ☐ Other \_\_\_\_\_

Interviewer: (Name) \_\_\_\_\_ Title (151) \_\_\_\_\_

(Agency) (152) \_\_\_\_\_ (Phone) \_\_\_\_\_

Are there problems with this case history form (153)

1 ☐ Yes   2 ☐ No

If yes, describe \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## B. HOSPITALIZATION DATA (OBTAIN PRINCIPALLY FROM MEDICAL RECORD OR PHYSICIAN)

Hospital where diagnosis established   Medical Record No. \_\_\_\_\_

Name (154) \_\_\_\_\_ Address \_\_\_\_\_ Phone \_\_\_\_\_

Primary Physician(s) \_\_\_\_\_ Phone \_\_\_\_\_

HOSPITAL DATA

	Mo.	Day	Yr.
Date of first hospital admission	<input type="text"/> (155-156)	<input type="text"/> (157-158)	<input type="text"/> (159-160)
Date of last hospital discharge	<input type="text"/> (161-162)	<input type="text"/> (163-164)	<input type="text"/> (165-166)

Total days \_\_\_\_\_ hospitalization  
(167-168)

PHYSICAL FINDINGS

Symptoms and Physical Findings observed at any time during illness:

		Yes 1	No 2	Unk. 9
Loss of facial expression	(169)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ptosis	(170)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Extracocular muscle palsies	(171)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pupils dilated	(172)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
constricted	(173)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
sluggish pupil reactivity	(174)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Trouble swallowing	(175)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Constipation	(176)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diarrhea	(177)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Altered cry	(178)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Weak sucking	(179)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Muscle weakness				
Poor head control	(180)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Upper extremities	(181)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lower extremities	(182)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
"Floppy"	(183)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Knee Deep Tendon Reflex				
Absent	(184)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Depressed	(185)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Somnolent	(186)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Irritable	(187)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fever	(188)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dehydration	(189)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Respiratory difficulty	(190)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Respiratory arrest	(191)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pneumonia	(192)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other _____	(193)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

TREATMENT

Respiratory Assistance Needed	(194)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>          </u> No. of Days (195-196)
Oxygen only	(197)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Intubation	(198)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Tracheostomy	(199)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ventilator	(200)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Infant feeding					<u>          </u> No. of Days (202-203)
Feeding tube	(201)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	



TREATMENT

## Treatment (Cont'd.)

Antibiotics Given:

Drug	Oral or Parenteral	Dose (Gms/day)	Duration (days)	Date started	
				Mo.	Day
(204)	(205)	(206-208)	(209-210)	(211-214)	
(215)	(216)	(217-219)	(220-221)	(222-225)	
(226)	(227)	(228-230)	(231-232)	(233-236)	
(237)	(238)	(239-241)	(242-243)	(244-247)	

Was antitoxin given? (246) 1 ☐ Yes 2 ☐ NoIf yes, give route of administration (249) 1 ☐ I.V. 2 ☐ I.M. 3 ☐ Both 9 ☐ Unk.

If yes, how many C.C. Total (Connaught Adult 10cc/vial, Connaught Ped. 2cc/vial)

\_\_\_\_\_ Total cc (250-51)

Other specific therapeutic medication given: (252) \_\_\_\_\_

DIAGNOSTIC TESTS

Was a spinal tap done? (253) 1 ☐ Yes 2 ☐ No 9 ☐ Unk.Date 

Mo.	Day	Yr.

  
(254-259)Was spinal tap reported as normal? (260) 1 ☐ Yes 2 ☐ No 9 ☐ Unk.

Spinal fluid protein \_\_\_\_\_ mgm% (261-263)

Total number of white cells \_\_\_\_\_ (264-266)

Was a Tensilon test done? (267) 1 ☐ Yes 2 ☐ No 9 ☐ Unk.Date 

Mo.	Day	Yr.

  
(268-273)If yes, results (274) 1 ☐ Pos. 2 ☐ Neg. 3 ☐ Equivocal 9 ☐ Unk.Was an EMG (electromyography) done? (275) 1 ☐ Yes 2 ☐ No 9 ☐ Unk.Date 

Mo.	Day	Yr.

  
(276-281)

If yes, was it interpreted as compatible or diagnostic of botulism? (282)

1 ☐ Yes 2 ☐ No 3 ☐ Not sure 9 ☐ Unk.If EMG done, was BSAP noted? (283) 1 ☐ Yes 2 ☐ No 9 ☐ Unk.

Source of hospitalization data: (284)

1 ☐ Physician 2 ☐ Medical Record 3 ☐ Both 4 ☐ Other \_\_\_\_\_

Hospitalization section completed by:

Name \_\_\_\_\_ Title (285) \_\_\_\_\_

Agency (286) \_\_\_\_\_ Phone No. \_\_\_\_\_ Date \_\_\_\_\_

**C. SPECIMEN TESTING FOR *C. BOTULINUM* (OBTAIN FROM MEDICAL RECORDS, STATE LABORATORY, OR CDC BOTULISM LABORATORY)**

Serum sample for toxin: (287) 1 ☐ Type A 2 ☐ Type B 3 ☐ Type E 4 ☐ Neg 5 ☐ Not tested 6 ☐ Toxic but not typed

Stool sample: (288) 1 ☐ Type A 2 ☐ Type B 3 ☐ Type E 4 ☐ Neg 5 ☐ Not tested

**STOOL SPECIMEN(S)**

Date Mo. Day Yr.	Infant's Age (Wks)	Direct Toxin Assay			Enrichment Culture			Organism Isolated	
		Type Specific Toxin 1	Non-Specific Toxin 2	Non Toxin 3	Type Specific Toxin 1	Non-Specific Toxin 2	Non Toxin 3	Yes 1	No 2
<input type="text"/> <input type="text"/> <input type="text"/> (289-294)	<input type="text"/> (295-296)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> (297)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> (298)	<input type="checkbox"/>	<input type="checkbox"/> (299)
<input type="text"/> <input type="text"/> <input type="text"/> (300-305)	<input type="text"/> (306-307)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> (308)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> (309)	<input type="checkbox"/>	<input type="checkbox"/> (310)
<input type="text"/> <input type="text"/> <input type="text"/> (311-316)	<input type="text"/> (317-318)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> (319)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> (320)	<input type="checkbox"/>	<input type="checkbox"/> (321)
<input type="text"/> <input type="text"/> <input type="text"/> (322-327)	<input type="text"/> (328-329)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> (330)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> (331)	<input type="checkbox"/>	<input type="checkbox"/> (332)

Date    of first negative follow-up specimen.  
(333-338)

Were food, medications, or environmental samples tested? (339) 1 ☐ Yes 2 ☐ No 9 ☐ Unk.

If yes, list: (340) \_\_\_\_\_

Samples positive for: (341) 1 ☐ Performed toxin 2 ☐ *C. botulinum* 3 ☐ Both 4 ☐ Neither

If any positive for toxin or organisms, please describe: (342) \_\_\_\_\_

Specimen testing section completed by:

Name \_\_\_\_\_ Title \_\_\_\_\_  
(343)

Agency \_\_\_\_\_ Phone No. \_\_\_\_\_ Date \_\_\_\_\_  
(344)

Patient outcome (345) 1 ☐ Improving 2 ☐ Recovered 3 ☐ Death

If patient died, date     
(346-351)

Form Reviewed and Submitted by:

Name \_\_\_\_\_ Title \_\_\_\_\_  
(352)

Agency \_\_\_\_\_ Phone No. \_\_\_\_\_ Date \_\_\_\_\_  
(353)

### **\*PROTECTION OF PRIVACY INFORMATION**


Public Law 93-579 entitled the Privacy Act of 1974 requires that individuals asked to furnish information such as that requested in this form be informed of the purpose for collecting such information and what the information will generally be used for. The following information is accordingly provided:

**Authority:** The Center for Disease Control, an agency of the Department of Health, and Human Services, is authorized to solicit the information requested in the attached form under the authority of the Public Health Service Act, Section 301, 381 (42 U.S.C. 241, 284).

**Purpose:** The information requested is considered relevant and necessary in the investigation of infant botulism.

**Uses:** The information requested may be shared with federal, state and local health authorities and will be used to implement appropriate control measures if any health problems are identified. An accounting of such disclosures will be made available to you upon request.

**Effects of Non-Disclosure:** Your disclosure of the requested information is voluntary, and no penalty will be imposed if you choose not to respond.

	Division of Environmental Health and Communicable Disease Prevention	
	Section: 4.0 Diseases and Conditions	Updated 7/03
	Subsection: Botulism	Page 20 of 24

## Botulism Alert Summary

Investigator taking botulism call should fill out information upon:

1. Initial case review,
2. Follow-up call approximately one week later, and
3. Final call 4-8 weeks later (when final lab tests are known).

Regional Communicable Disease Coordinator will provide back-up as needed. Please request **copy of EMG** and **copy of discharge summary**, to file with this report.

Alert No: \_\_\_\_\_  
 Patient Name: \_\_\_\_\_  
 Date (1<sup>st</sup> call): \_\_\_\_/\_\_\_\_/\_\_\_\_  
 State: \_\_\_\_\_

Patient	
Name _____	Age _____ Sex _____ DOB ____/____/____
Address _____	Phone _____
Hospital _____	Phone _____
Address _____	
Attending physician _____	Phone _____
Consultants (Neurologist if involved)	
Name _____	Phone _____
Name _____	Phone _____

### Preliminary History

Acute illness in the past month? \_\_\_\_\_

Underlying medical problems? \_\_\_\_\_

Prior gastric surgery or abnormal GI tract? \_\_\_\_\_

Date of presumptive exposure, if known? \_\_\_\_/\_\_\_\_/\_\_\_\_

Date of first symptoms (DOO)? \_\_\_\_/\_\_\_\_/\_\_\_\_

Date first saw physician \_\_\_\_/\_\_\_\_/\_\_\_\_ Date hospitalized \_\_\_\_/\_\_\_\_/\_\_\_\_

Admitting diagnosis \_\_\_\_\_


Date botulism diagnosis first seriously considered \_\_\_\_/\_\_\_\_/\_\_\_\_

Suspected link to known outbreak? Yes \_\_\_\_\_ No \_\_\_\_\_

Date of first contact with:

State Health Department (SHD) \_\_\_\_/\_\_\_\_/\_\_\_\_ CDC \_\_\_\_/\_\_\_\_/\_\_\_\_

Reason for SHD or CDC contact? \_\_ lab testing, \_\_ antitoxin, \_\_ consultation, \_\_ other

	Division of Environmental Health and Communicable Disease Prevention	
	Section: 4.0 Diseases and Conditions	Updated 7/03
	Subsection: Botulism	Page 21 of 24

Problems with communication or contact? \_\_\_\_\_

**Symptoms:** Indicate if present at time of review of case by SHD or CDC.

Date \_\_\_\_/\_\_\_\_/\_\_\_\_ Circle symptoms reported present within first 24 hours.


	Yes	No	Don't Know		Yes	No	Don't Know
Abdominal Pain	_____	_____	_____	Dyspnea	_____	_____	_____
Nausea	_____	_____	_____	Fatigue	_____	_____	_____
Vomiting	_____	_____	_____	Dry Mouth	_____	_____	_____
Diarrhea	_____	_____	_____	Sore throat	_____	_____	_____
Blurred Vision	_____	_____	_____	Urinary Retention	_____	_____	_____
Diplopia	_____	_____	_____	Constipation	_____	_____	_____
Photophobia	_____	_____	_____	Dizziness	_____	_____	_____
Dysphagia	_____	_____	_____	Paresthesias	_____	_____	_____
Dysphonia	_____	_____	_____	Convulsions	_____	_____	_____
Muscle Weakness	_____	_____	_____	Other	_____	_____	_____
Upper distal	_____	_____	_____		_____	_____	_____
Upper proximal	_____	_____	_____		_____	_____	_____
Lower distal	_____	_____	_____		_____	_____	_____
Lower proximal	_____	_____	_____		_____	_____	_____

Where did the muscle weakness start? \_\_\_\_\_

**Signs:** Indicate if present at time of case review (date \_\_\_\_/\_\_\_\_/\_\_\_\_).

Circle if present at first medical exam for this illness (date \_\_\_\_/\_\_\_\_/\_\_\_\_).

	Yes	No	Don't Know		Yes	No	Don't Know
Ptosis	_____	_____	_____	Abnormal Sensory	_____	_____	_____
Extraocular Palsy	_____	_____	_____	Specify	_____	_____	_____
Pupils	_____	_____	_____	Ataxia	_____	_____	_____
Dilated	_____	_____	_____	Symmetrical?	_____	_____	_____
Constricted	_____	_____	_____		_____	_____	_____
Mid-position	_____	_____	_____	Nystagmus	_____	_____	_____
Reactive	_____	_____	_____		_____	_____	_____
Equal	_____	_____	_____	DTRs	_____	_____	_____
Decreased	_____	_____	_____	Normal	_____	_____	_____
Corneals	_____	_____	_____	Hypoactive	_____	_____	_____
Facial Paralysis	_____	_____	_____	Hyperactive	_____	_____	_____
Symmetric?	_____	_____	_____	Symmetric	_____	_____	_____
Decreased Gag	_____	_____	_____		_____	_____	_____
Decreased ability to protrude tongue	_____	_____	_____	Abnl Mental State	_____	_____	_____
Weakness or paralysis of extremity (ies)	_____	_____	_____		_____	_____	_____
a. upper	_____	_____	_____	Fever	_____	_____	_____
b. lower	_____	_____	_____	Respiratory	_____	_____	_____

	Division of Environmental Health and Communicable Disease Prevention	
	Section: 4.0 Diseases and Conditions	Updated 7/03
	Subsection: Botulism	Page 22 of 24

c. symmetric \_\_\_\_\_ Impairment \_\_\_\_\_

Toes(Babinski's Reflex) 1) down 2) up 3) unknown

Does the patient have a wound? Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, describe \_\_\_\_\_

Date wound sustained \_\_\_\_/\_\_\_\_/\_\_\_\_

How treated \_\_\_\_\_

### **Laboratory studies**

Spinal tap: Yes \_\_\_\_\_ No \_\_\_\_\_

Date	RBC's	WBC's	Cells	Protein	Glucose	Other
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

	Date	Positive	Negative	Not Done
Tensilon test	_____	_____	_____	_____
Comments	_____			

### **EMG:**

Date	Area tested	Muscle group weak	Frequency (hertz)	Amplitude (↑↓ nl)	Facilitation (yes or no)
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Vital Capacity


Date	cc
_____	_____
_____	_____
_____	_____

Antitoxin given? Yes _____ No _____	Type _____	Route _____
Amount (# vials) _____	Date _____	
Amount _____	Date _____	
Sensitivity testing done prior to administration? Yes _____ No _____		
Result _____		
Hypersensitivity reaction? _____		
Anaphylaxis? _____		
Serum sickness? _____		

Other treatment given \_\_\_\_\_

### **Morbidity**

Yes No Date

	Division of Environmental Health and Communicable Disease Prevention	
	Section: 4.0 Diseases and Conditions	Updated 7/03
	Subsection: Botulism	Page 23 of 24

NG Tube Feedings \_\_\_\_\_  
 Respirator \_\_\_\_\_  
 Tracheostomy \_\_\_\_\_

**Outcome:** Recovered? \_\_\_\_\_ Died? \_\_\_\_\_ Cause of Death \_\_\_\_\_  
 Number of days in hospital \_\_\_\_\_  
 Number of days in intensive care: \_\_\_\_\_  
 Date discharged from hospital \_\_\_\_/\_\_\_\_/\_\_\_\_  
 Discharged to: \_\_\_\_\_ Home  
                   \_\_\_\_\_ Nursing home  
                   \_\_\_\_\_ Rehab facility  
                   \_\_\_\_\_ Other \_\_\_\_\_

**Botulism laboratory tests**

Tested at a) CDC Lab b) State Lab \_\_\_\_\_ c) Other \_\_\_\_\_

Indicate if mouse died but non-neutralizable

Type of Sample	Date of Sample	Result
Serum .5ml		
Serum 1 ml		
Serum .5 ml		
Serum 1 ml		
Serum .5 ml		
Serum 1 ml		
Gastric		
Stool toxin test		
Stool standard culture		
Stool enrichment culture		

Food items (indicate items tested and result as “+” or “-“)


\_\_\_\_\_  
 \_\_\_\_\_

Food implicated: \_\_\_\_\_ Date ingested: \_\_\_\_/\_\_\_\_/\_\_\_\_

If botulism, number of cases in outbreak \_\_\_\_\_

<p style="text-align: center;">FINAL DIAGNOSIS (circle applicable)</p> <ul style="list-style-type: none"> <li>• BOTULISM    Adult Foodborne    Adult Intestinal Colonization    Wound    Uncharacterized</li> <li>• GUILLAINE-BARRE</li> <li>• STROKE</li> <li>• OTHER _____</li> </ul>
---

EMG result and discharge summary requested? Yes \_\_\_\_\_ No \_\_\_\_\_

	Division of Environmental Health and Communicable Disease Prevention	
	<b>Section: 4.0 Diseases and Conditions</b>	Updated 7/03
	Subsection: Botulism	Page 24 of 24

Comments/Notes (use additional pages as needed)

Investigator Name \_\_\_\_\_ Agency \_\_\_\_\_ Phone \_\_\_\_\_